AMENDMENTS TO THE CLAIMS

Claims 1 - 28 (Canceled)

29. (Previously presented) A method for determining the correct Internet Protocol (IP) address for network-connected devices, comprising:

receiving from a target device on the network a request to be assigned an IP address, the request including a Media Access Control (MAC) address associated with the target device;

issuing a query to one or more managed Ethernet switches on the network, each switch having a number of ports, where each query specifies the MAC address and requests that the queried managed Ethernet switch report the number of any port on which was received data sent by a device having the specified MAC address;

receiving replies to one or more of the queries; and

in response to determining that one of the queried managed Ethernet switches and a port number reported by that switch corresponds to a single known IP address, assigning that known IP address to the target device.

30. (Previously presented) The method of claim 29 further comprising: maintaining a database listing one or more devices connected to a network, wherein each listed device has an entry that includes an IP address associated with the listed device, an identity of a managed Ethernet switch to which the listed device is associated, and a port number of the managed Ethernet switch to which the listed device is associated.

31. (Previously presented) The method of claim 30 wherein determining that one of the queried managed Ethernet switches and a port number reported by that queried managed Ethernet switch corresponds to a known IP address includes matching the one of the queried managed Ethernet switches and the port

number reported by that queried managed Ethernet switch to an entry in the database, thereby identifying the IP address in that entry to be the known IP address.

32. (Previously presented) The method of claim 29 wherein the one or more managed Ethernet switches each support find port queries as defined in Internet standard document RFC 1493.

33. (Previously presented) The method of claim 29 wherein the target device's request to be assigned an IP address complies with the Bootstrap Protocol as defined in Internet standard document RFC 951.

34. (Previously presented) The method of claim 29 wherein the target device's request to be assigned an IP address complies with the Dynamic Host Configuration Protocol (DHCP) as defined in Internet standard document RFC 1531.

35. (Previously presented) The method of claim 29 wherein the queries to the one or more managed Ethernet switches complies with management protocol as defined in Internet standard document RFC 1493.

36. (Previously presented) The method of claim 29 wherein in response to determining that one of the queried managed Ethernet switches and a port number reported by that switch corresponds to more than one known IP address, the method further comprises:

sending messages to each device indicated by the one or more known IP addresses, so as to elicit a response from each of those devices currently in service, thereby identifying known IP addresses not in service by lack of response; and

in response to determining that there is only a single known IP address not in service, assigning that known IP address to the target device.

37. (Previously presented) The method of claim 36 wherein each message sent is an ICMP ECHO or PING request.

38. (Previously presented) The method of claim 36 wherein each message sent is a broadcast Address Resolution Protocol (ARP) request.

39. (Previously presented) The method of claim 36 wherein each message sent is a unicast Address Resolution Protocol (ARP) request.

40. (Previously presented) The method of claim 29 further comprising:

periodically polling devices connected to the network to determine whether the current status of each device is in service or not in service; and

updating a database with the current status based on the polling.

41. (Previously presented) The method of claim 40 wherein in response to determining that one of the queried managed Ethernet switches and a port number reported by that switch corresponds to more than one known IP address, the method further comprises:

consulting the database to identify known IP addresses not in service; and

in response to determining that there is only a single known IP address not in service, assigning that known IP address to the target device.

42. (Previously presented) The method of claim 40 wherein the polling includes:

sending messages to each device, so as to elicit a response from each of those devices currently in service, thereby identifying known IP addresses not in service by lack of response.

43. (Previously presented) The method of claim 29 wherein assigning the known IP address to the target device includes sending a response to the

target device, thereby indicating to the target device that an IP address has been allocated.

44. (Previously presented) The method of claim 43 wherein both the target device's request to be assigned an IP address and the response to the target device complies with the Bootstrap Protocol as defined in Internet standard document RFC 951.

45. (Previously presented) The method of claim 43 wherein both the target device's request to be assigned an IP address and the response to the target device complies with the Dynamic Host Configuration Protocol (DHCP) as defined in Internet standard document RFC 1531.

46. (Previously presented) A method for determining the correct Internet Protocol (IP) address for network-connected devices, comprising:

maintaining a database listing one or more devices connected to a network, wherein each listed device has an entry that includes an IP address associated with the listed device, an identity of a managed Ethernet switch to which the listed device is associated, and a port number of the managed Ethernet switch to which the listed device is associated;

receiving from a target device on the network a request to be assigned an IP address, the request including a Media Access Control (MAC) address associated with the target device;

identifying the MAC address included in the request;

identifying managed Ethernet switches associated with devices connected to the network whose IP addresses are listed in the database, thereby identifying target managed Ethernet switches, each managed Ethernet switch having a number of ports and capable of reporting the port to which a device is attached in response to a find port query specifying that device's MAC address;

issuing a query to each of the target managed Ethernet switches, where each query specifies the identified MAC address and requests that the queried managed Ethernet switch report the number of any port on which was received a message sent by a device having the identified MAC address;

analyzing replies to each of the queries to determine if an entry in the database matches one of the queried managed Ethernet switches and the port number reported by that switch; and

in response to only one entry matching, assigning the IP address of that entry to the target device.

47. (Previously presented) The method of claim 46 wherein in response to more than one entry matching thereby indicating multiple possible IP addresses, the method comprises:

determining that only one of the multiple possible IP addresses is not in service; and

assigning that one IP address to the target device.

48. (Previously presented) A method for determining the correct Internet Protocol (IP) address for network-connected devices, comprising:

receiving from a target device on the network a request to be assigned an IP address, the request including a physical address associated with the target device, wherein the target device is a network computing device;

issuing a query to one or more managed Ethernet switches on the network, each switch having a number of ports, where each query specifies the physical address and requests that the queried managed Ethernet switch report the number of any port on which was received data sent by a device having the specified physical address;

receiving replies to one or more of the queries;

in response to determining that one of the queried managed Ethernet switches and a port number reported by that switch corresponds to a single known IP address, assigning that known IP address to the target device;

in response to determining that one of the queried managed Ethernet switches and a port number reported by that switch corresponds to more than one known IP address, determining that only one of the known IP addresses is not in service, and assigning that one known IP address to the target device.

49. (Previously presented) The method of claim 48 further comprising:
periodically polling devices connected to the network to determine whether the current status of each device is in service or not in service; and
updating a database with the current status based on the polling.

50. (Previously presented) The method of claim 49 wherein in response to determining that one of the queried managed Ethernet switches and a port number reported by that switch corresponds to more than one known IP address, the method further comprises:
consulting the database to identify known IP addresses not in service.

51. (Previously presented) The method of claim 49 wherein the polling includes:
sending messages to each device, so as to elicit a response from each of those devices currently in service, thereby identifying known IP addresses not in service by lack of response.

52. (Previously presented) A method for determining the correct Internet Protocol (IP) address for network-connected devices, comprising:

receiving from a target device on the network a request to be assigned an IP address, the request including a physical address associated with

the target device, wherein the request complies with at least one of the Internet standard RFC 951 Bootstrap Protocol and the Internet standard RFC 1531 Dynamic Host Configuration Protocol (DHCP);

issuing a query to one or more managed network switches on the network, such switches being distinct from hubs and routers, with each switch having a number of ports, where each query specifies the physical address and requests that the queried managed network switch report the number of any port on which was received data sent by a device having the specified physical address, wherein each query complies with management protocol as defined in Internet standard document RFC 1493;

in response to determining that one of the queried managed network switches and a port number reported by that switch corresponds to a single known IP address, assigning that known IP address to the target device;

in response to determining that one of the queried managed network switches and a port number reported by that switch corresponds to more than one known IP address, determining that only one of the known IP addresses is not in service, and assigning that one known IP address to the target device.

53. (Previously presented) A method for determining the correct Internet Protocol (IP) address for network-connected devices, comprising:

receiving from a target device on the network a request to be assigned an IP address, the request including a physical address associated with the target device;

issuing a query to one or more managed network switches on the network, such switches being distinct from hubs and routers, with each switch having a number of ports, where each query specifies the physical address and requests the queried managed network switch to report

the number of any port on which was received data sent by a device having the specified physical address;

receiving replies to one or more of the queries; and

in response to determining that one of the queried managed network switches and a port number reported by that switch corresponds to a single known IP address, assigning that known IP address to the target device.

54. (Previously presented) The method of claim 53 wherein at least one of the managed network switches is connected to a hub having a number of hub ports.

55. (Previously presented) The method of claim 54 wherein a plurality of devices are coupled to the hub ports, and the at least one managed network switch reports all MAC addresses and port assignments associated with the hubs and devices.